

PATENT
Atty. Dkt. No. SAR 14951

REMARKS

This is intended as a full and complete response to the Office Action dated February 18, 2005, having a shortened statutory period for response set to expire on May 18, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1 – 20 and 22 - 29 remain pending in the application and are shown above. Claims 21 and 30 have been cancelled. Claims 4, 11, 14, 22, 26 and 28 have been amended. Claims 1 – 4, 6 – 9, 11 – 17, 21, 23, and 26 -30 stand rejected and claims 24 and 25 are indicated to be allowable by the Examiner. Claims 5, 10, 18 – 20, and 22 were objected to by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

I. Rejection of Claims 4, 11 -16, 23 and 26 - 28 under 35 U.S.C. § 112

Claims 4, 11 – 16, 23 and 26 - 28 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4, 11, 14, 23, 26 and 28 have been amended to address the rejection. Withdrawal of the rejection is respectfully requested.

II. Rejection of Claims 1, 2, 6, 21, 26, 27 and 30 under 35 U.S.C. § 102

Claims 1, 2, 6, 21, 26, 27 and 30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Brumitt. (US 5,563,988) (Brumitt). The Examiner cites Brumitt by name, but provides the patent number of Maes, et al. (US Patent 5,563,988). Upon reviewing the Office Action, the applicants believe the Examiner meant to cite US Patent 6,658,136 issued to Brumitt. Applicants respectfully traverse the rejection.

The Examiner alleges that Brumitt teaches a method of performing vision processing using a ground plane that is defined by a depth map. The Examiner contends that Brumitt teaches that the "depth map is based on an assumed ground plane" and that the depth map is compensated for "differences between the assumed

PATENT
Atty. Dkt. No. SAR 14851

ground plane and the actual ground plane." The Examiner concludes that Brumitt teaches the applicants invention. The applicants respectfully disagree.

More specifically, Brumitt teaches a process for tracking objects using a stereo camera. The images from the camera are processed to separate foreground objects from a background. The foreground image is segmented to separate objects in the imaged scene. These segmented regions are projected onto a ground plane. As stated at col. 11, line 66 to col. 12, line 9, the ground plane is derived by processing the minimum and maximum depth of a group of pixels in the depth map to identify corners and edges of the ground plane. The moving objects can be tracked and analyzed by processing the projected pixels.

The process taught by Brumitt relies upon a single ground plane and then, to compensate for roll and pitch of the camera, compensating (i.e., rotating) a location of the projection of pixel locations onto the plane. (See col. 12, lines 14-17) The pixel locations are computed as X, Y, Z locations relative to the single ground plane.

In contrast, the applicants' invention as recited in independent claims 1 and 26 enables a mobile platform to utilize vision processing by first creating a depth map using an assumed ground plane (i.e., a calibration process generates a first ground plane), identifying an actual ground plane (second ground plane) using the depth map, then compensating the depth map for differences between the assumed ground plane and the actual ground plane.

Brumitt simply does not determine two ground planes, nor does Brumitt teach using a difference between such ground planes to compensate the depth map. Brumitt recites only a single ground plane and states that the X, Y, Z location of a pixel in a segmented region is compensated for camera roll and pitch, but there is no description regarding how compensation is performed. Since two ground planes are not taught by Brumitt, Brumitt cannot be inferred to compensate the location using two ground planes.

Therefore, in view of Brumitt lacking elements that are recited in claims 1 and 26, these independent claims are patentable under 35 U.S.C. § 102(e). Dependent claims 2, 6, and 27 depend either directly or indirectly from claims 1 and 26, and for the same reasons stated above are patentable over Brumitt. Claims 21 and 30 have been

PATENT
Atty. Dkt No. SAR 14951

cancelled. In view of these amendments and remarks, the applicants respectfully request the rejection of claims 1, 2, 6, 26 and 27 be withdrawn.

III. Rejection of Claims 2 – 4, 6 – 9, 17 and 29 under 35 USC § 103

A. Claims 2-4, 6 and 7

Claims 2-4, 6 and 7 stand rejected under 35 USC § 103(a) as being obvious over Brumitt in view of Gokturk et al. (U.S. Patent Application Publication 2003/01699080), (Gokturk). Applicants respectfully disagree.

As discussed above, Brumitt does not teach or suggest the use of two ground planes for use in vision processing. Gokturk teaches a method of object classification for objects within a scene. The process, as described in paragraph 0065 et seq., segments the background and foreground of an image then processes the foreground information using various classification algorithms. Gokturk is devoid of any teaching or suggestion of using a ground plane. As such, no feasible combination of the teachings of Gokturk and Brumitt would result in the use of two ground planes in vision processing.

As such, claims 2 – 4, 6 and 7, which depend from claim 1, are patentable under 37 U.S.C. § 103 for the same reason claim 1 is patentable. The applicants respectfully request the rejection be withdrawn.

B. Claims 8, 9, 17 and 29

Claims 8, 9, 17 and 29 stand rejected under 35 USC § 103(a) as being obvious over Brumitt in view of Trajkovic et al. (U.S. Patent Application Publication 20030112132) (Trajkovic). Applicants respectfully disagree.

As discussed above, Brumitt does not teach or suggest the use of two ground planes for use in vision processing. Trajkovic teaches a method of detecting hazardous traffic conditions by analyzing images to detect objects (e.g., street signs) within a scene. Trajkovic is devoid of any teaching or suggestion of using a ground plane. As such, no feasible combination of the teachings of Trajkovic and Brumitt would result in the use of two ground planes in vision processing.

PATENT
Atty. Dkt. No. SAR 14951

As such, claims 8, 9, 17 and 29, which depend from claim 1, are patentable under 37 U.S.C. § 103. The applicants respectfully request the rejection be withdrawn.

IV. Allowable Subject Matter

The Examiner has objected to claims 5, 10, 18 – 20 and 22 as being dependent upon a rejected base claim. The Examiner concludes that these claims would be allowable subject matter if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Applicants thank the Examiner for indicating the allowable subject matter with respect to these claims. However, in view of the arguments set forth herein the Applicants believe base claims 1 and 17 (and all intervening claims) are in allowable form and, as such, the dependent claims 5, 10 and 18 – 20, as they stand, are therefore in allowable condition. Claim 22 has been amended to include the subject matter of claim 21. Therefore, the Applicants respectfully request that the foregoing objections to claims 5, 10, 18 – 20 and 22 be withdrawn.

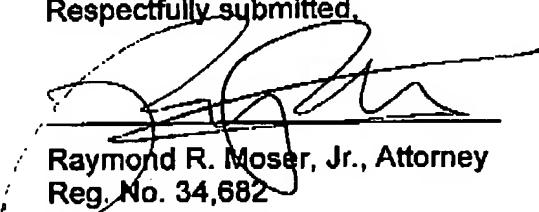
PATENT
Atty. Dkt. No. SAR 14951

Conclusion

Thus, the Applicants submit that all of these claims now fully satisfy the requirements of 35 U.S.C. §102.. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Raymond R. Moser, Jr. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,


Raymond R. Moser, Jr., Attorney
Reg. No. 34,682
(732) 530-9404
Moser, Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702

5-18-05
Date